# VIRGINIA DROUGHT MONITORING TASK FORCE
## Drought Status Report
## November 1, 2019

## Summary

The Virginia Drought Monitoring Task Force (DMTF) met on Thursday, October 31 2019 to discuss the status of drought monitoring and hydrologic conditions in the Commonwealth of Virginia. Recent above-normal rainfall has improved drought conditions across the Commonwealth, increasing soil moisture, reducing precipitation deficits and wildfire potential, and helping to mitigate drought impacts to agriculture.

Seven-day average stream flows returned to the normal range (above the 25th percentile) across all of Virginia. Groundwater levels in nearly all observation wells (17 out of 22) in the Virginia Climate Response Network are within the normal range. Of the five observation wells with levels below normal, four are indicating rising water levels.

The most recent weekly U.S. Drought Monitor web page map for Virginia (Appendix A, released October 31 2019) showed abnormally dry (D0) or drier conditions across approximately 79% of the Commonwealth, with moderate drought conditions covering approximately 20% of the state. These percentages decreased significantly over the past two weeks, when moderate drought conditions existed across more than half of Virginia.

The National Weather Service Monthly Drought Outlook (released October 31, 2019) showed a likelihood for drought removal in Virginia during November, 2019.

The Task Force discussed the drought indicators identified by the Virginia Drought Assessment and Response Plan, including the hydrologic indicators described above. The consensus of the Task Force was to recommend the removal of the current statewide drought watch advisory.

The DMTF did not schedule a subsequent meeting, but the drought indicators will continue to be monitored and the Task Force will meet if needed, depending upon drought conditions.

## Reports:

The National Weather Service (NWS) presented information regarding recent precipitation events with comparisons to previous deficits, as well as forecasts for the coming weeks. The Virginia Climatology Office provided information comparing recent rainfall to normal ranges for each of the 13 drought evaluation regions (Appendix B). The Virginia Department of Health's Office of Drinking Water reported that no public waterworks are currently implementing water use restrictions in Virginia. The U.S. Corps of Engineers Wilmington NC office reported on the status of their projects in the Roanoke River basin in Virginia (Philpott Dam and John H. Kerr dam).

Written reports were submitted by the Climatology Office at the University of Virginia, the U.S. Geological Survey (USGS), the Virginia Department of Agriculture and Consumer Services (VDACS) and DEQ. The Climatology Office report discussed recent precipitation totals relative to normal ranges and the seasonal change to late fall and winter conditions. The USGS report compares current stream flow and groundwater levels with normal flows and levels. The VDACS report describes drought impact information received from the agricultural community, and the DEQ report lists current conditions at the 4 large multi-purpose reservoirs listed as key reservoir storage indicators in the Virginia Drought Assessment and Response Plan.

## Climatology Office at the University of Virginia

Significant rainfall spread across the Commonwealth during the latter half of October, and has brought the monthly totals to significantly above normal for all of the Drought Regions. In fact, six of the Regions have seen over 150% of normal for October, and only one (Southeast Virginia) did not reach 125%. (These are averages across each Region).

The very dry September, however, held the two-month totals to lower than normal for all but the New River and Eastern Shore Regions. Rainfall totals, starting at the beginning of Summer (June 1) are all above 95% of normal for the five-month period for all Regions, except Shenandoah, with 89%.

The recent widespread rains reflect the seasonal switch from primarily scattered thunderstorm-based precipitation, to precipitation primarily associated with larger-scale storm systems and frontal passages.

The growing season (with its high evapotranspiration rates) is behind us. Moving closer to winter, temperatures are dropping, days are getting shorter, the sun is lower in the sky—all leading to large reductions in the amount of moisture lost to evaporation and uptake by plants.

Should the colder months bring sufficient winter-type storm systems to this area, moisture deficits could be completely removed and prospects for the growing season ahead could be quite favorable.

## Virginia Department of Agriculture and Consumer Services

**Drought Status Report**
**November 1, 2019:**

While VDACS has heard reports that pasture conditions are improving, livestock producers will likely continue to experience the impact of having to feed livestock earlier than normal due to the recent drought conditions. Additionally, VDACS is aware that at least two localities - Pittsylvania and Prince Edward Counties - have requested disaster designation from the U.S. Secretary of Agriculture as a result of the drought's impact on agricultural operations in those localities.

## U.S. Geological Survey

### October 31, 2019

Current streamflow conditions at most sites across the Commonwealth are at normal levels (fig. 1). Statewide rainfall totals of between 3-5 inches over the past two weeks have helped improve the current streamflow conditions as well as the 7-day and 28-day average streamflows (figs. 2-3).

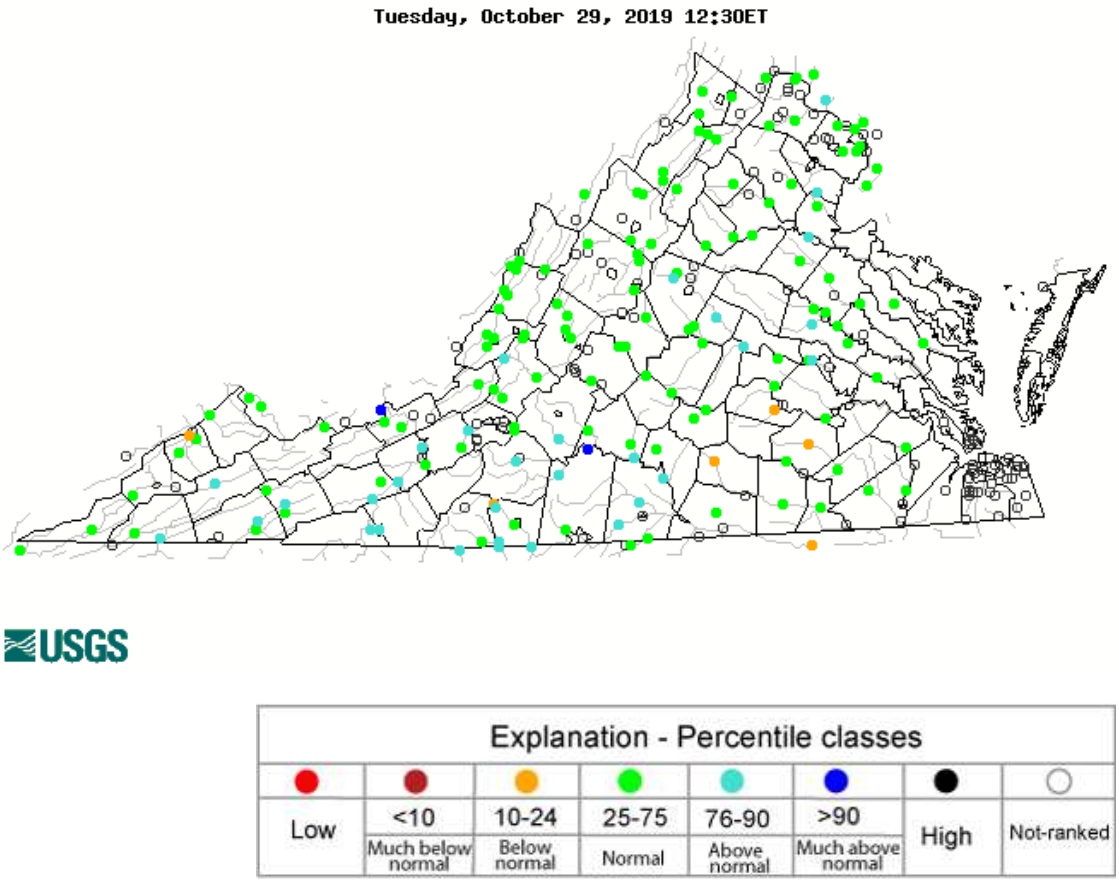



**Figure 1**. Current streamflow conditions compared to historical streamflow at individual stations for October 29, 2019 in Virginia. https://waterwatch.usgs.gov/index.php?m=pa07d&r=va&w=map

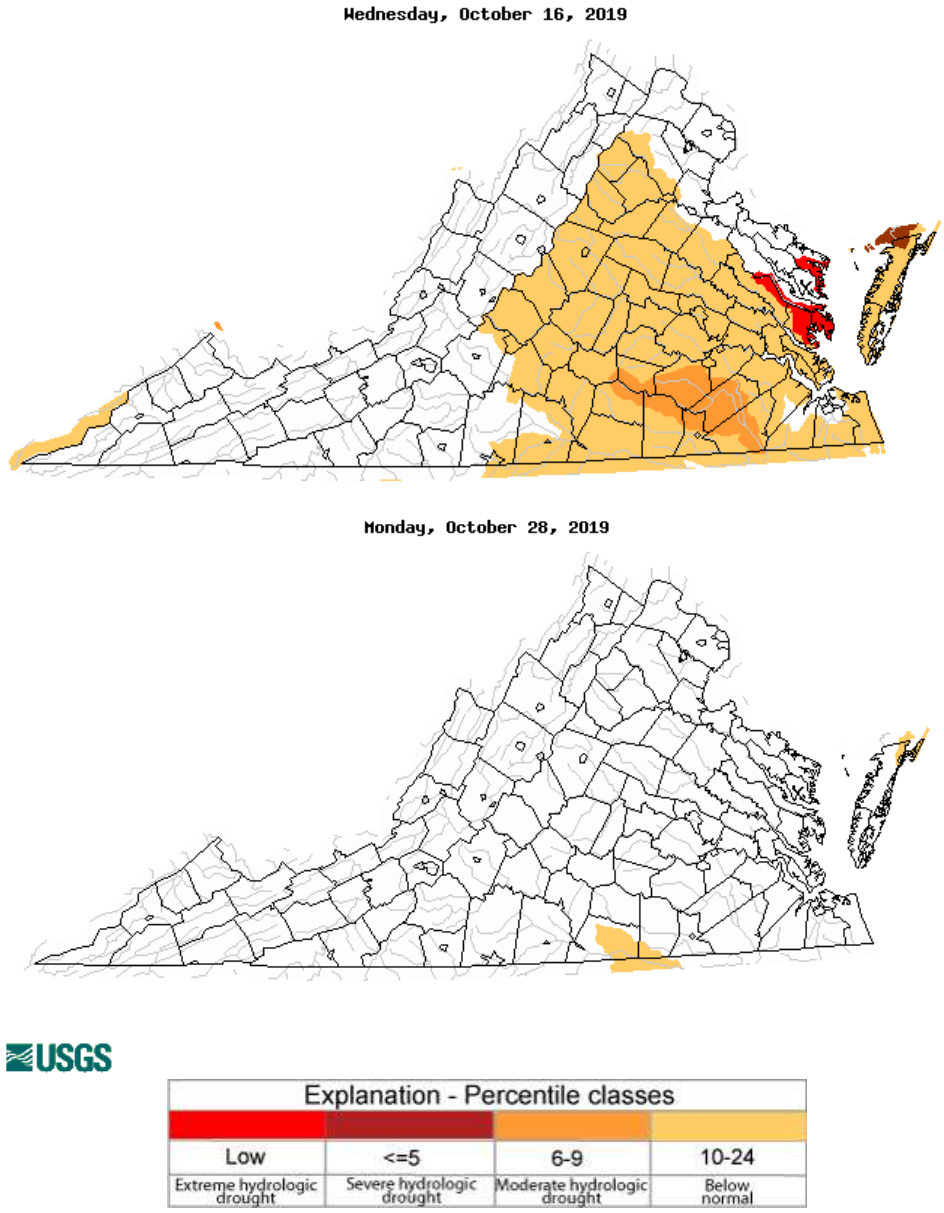



**Figure 2**. 7-day average streamflow compared to historical streamflow in river basins for October 16, 2019 (top) and October 28, 2019 (bottom) in Virginia. https://waterwatch.usgs.gov/index.php?m=dryw&r=va

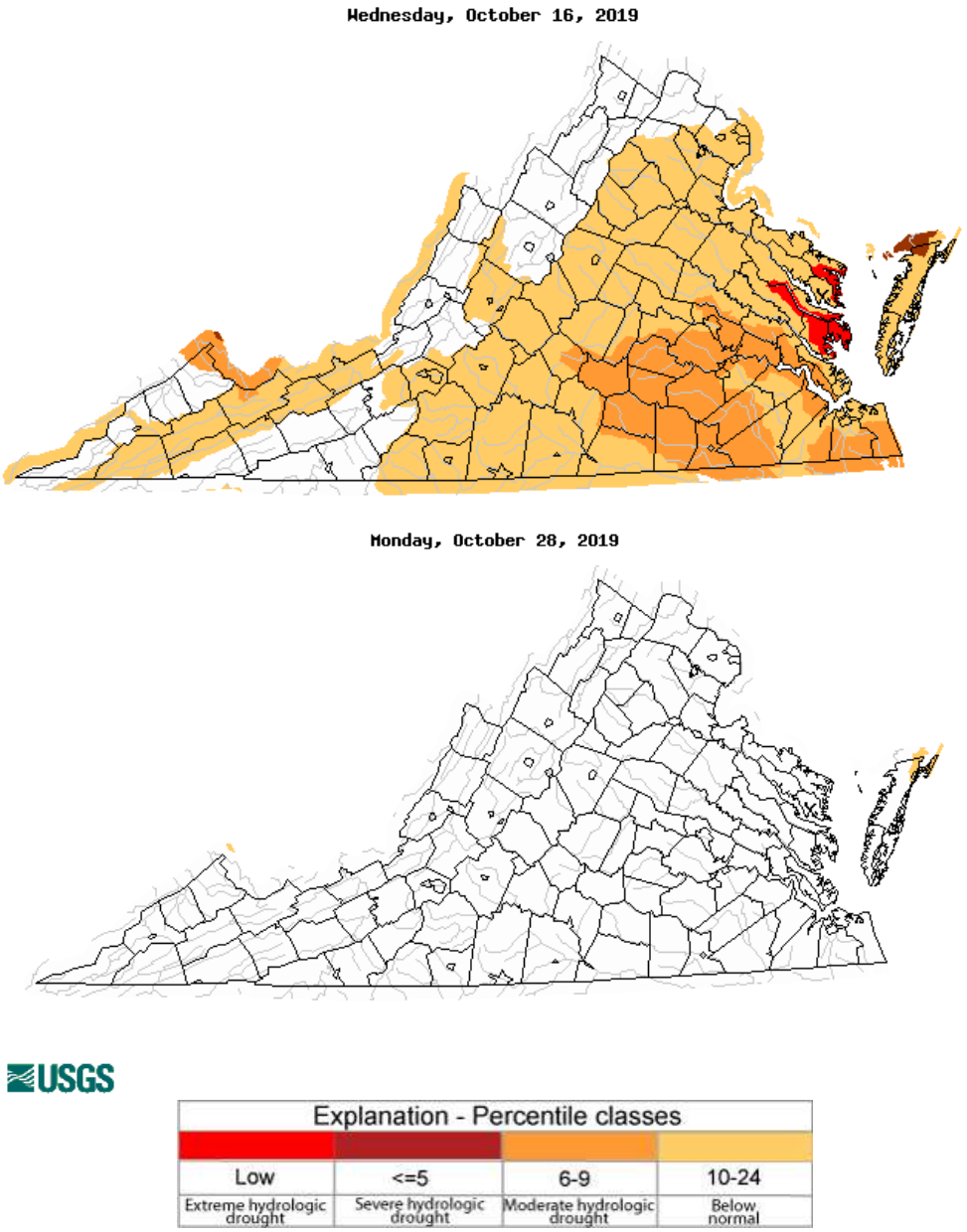
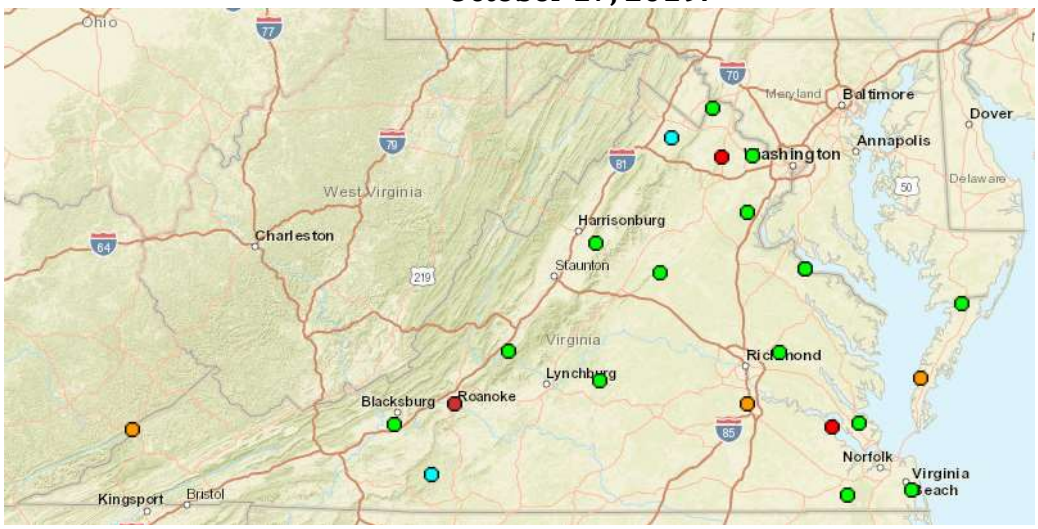


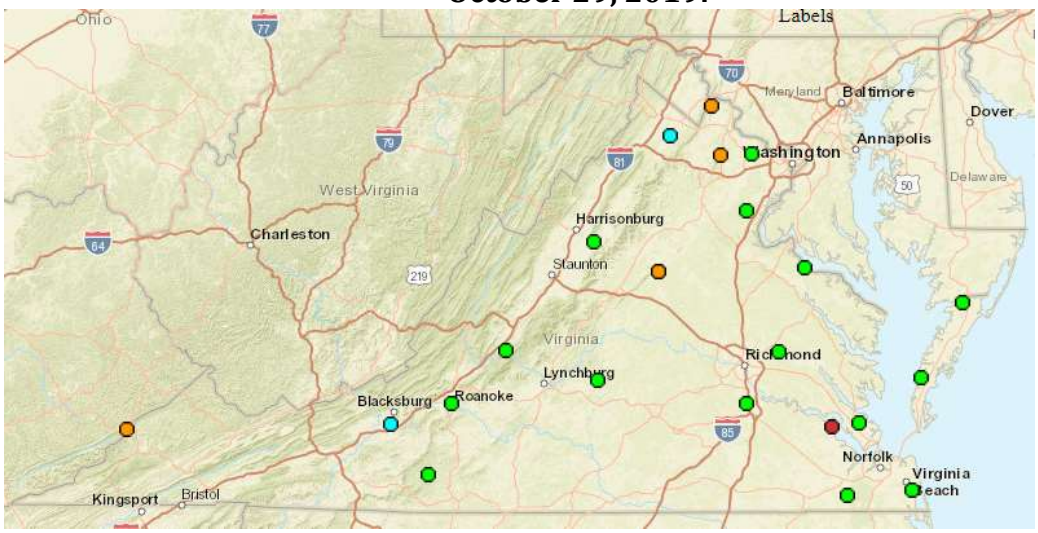

**Figure 3**. 28-day average streamflow compared to historical streamflow in river basins for October 16, 2019 (top) and October 28, 2019 (bottom) in Virginia. https://waterwatch.usgs.gov/index.php?m=pa28d_dwc&r=va&w=map

Groundwater levels in five of the observation wells in the Virginia Climate Response Network (CRN)are reporting below normal water levels (fig. 4). This is an overall decrease of one below normal well in the last two weeks. One well that went from below normal to normal was the well in Roanoke. This is not surprising due to the tight relationship the water level in this well has with the level of the stream nearby. The others were in Colonial Heights and in Northampton County on the Eastern Shore. Both wells had just dipped into the below normal range and are now trending upward. While conditions improved from much below normal to below normal in the Prince William County well, wells to the north (Loudoun County) and the south (Orange County) have continued to drop and are now in the below normal range. The rest of the network is generally reporting normal water levels across the Commonwealth (fig. 5).

**October 17, 2019:**




**October 29, 2019:**



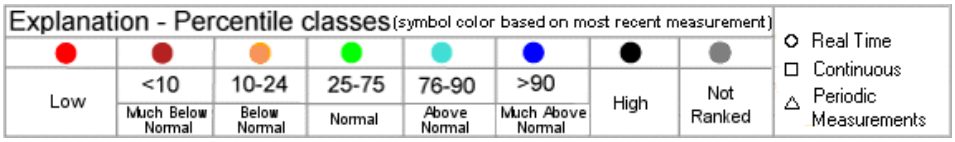




**Figure 4.** Groundwater-level conditions from the Virginia Climate Response Network for October 17, 2019 (top) and October 29, 2019 (bottom). http://groundwaterwatch.usgs.gov/NetMapT1L2.asp?ncd=crn&sc=51

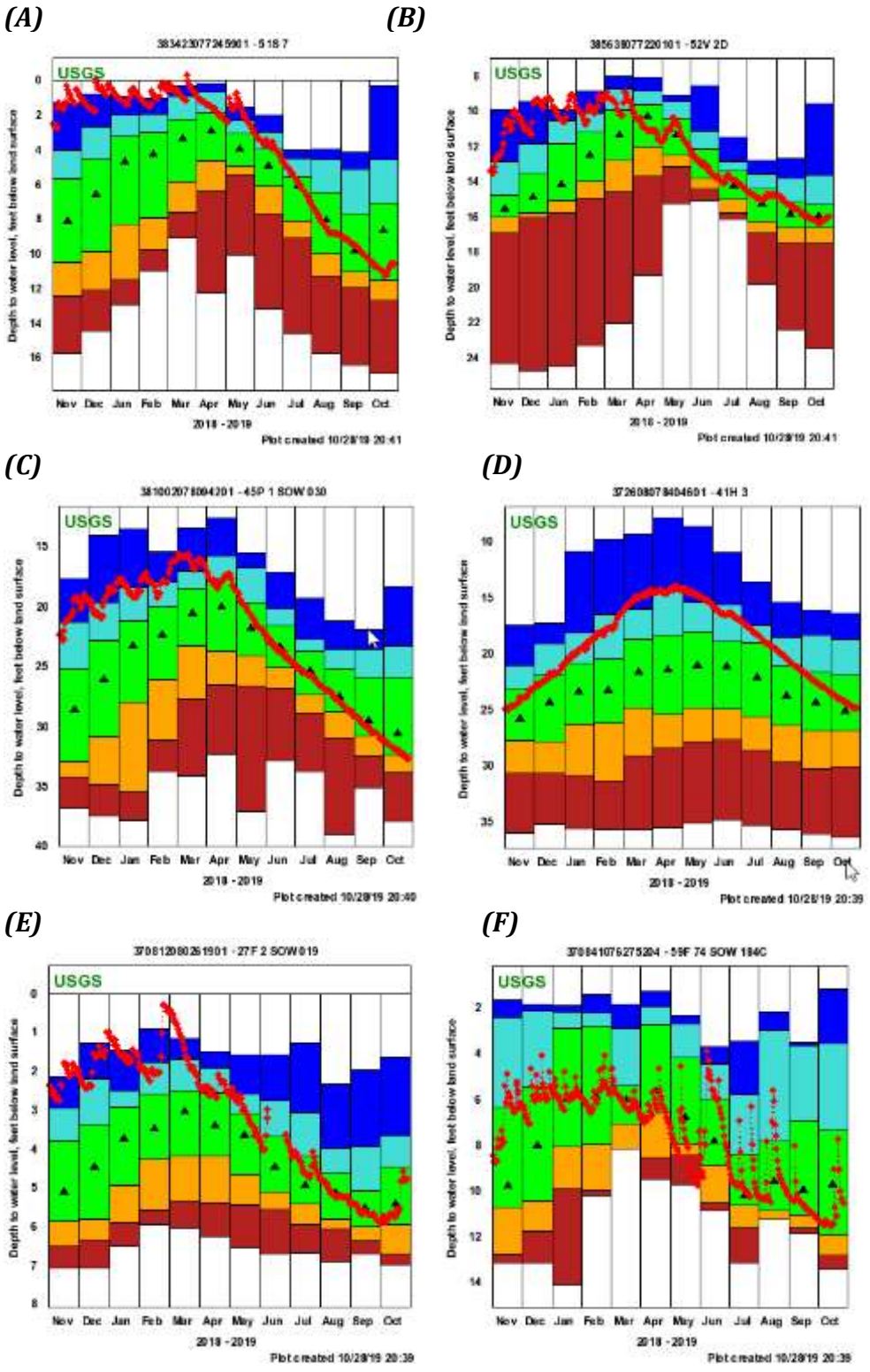



**Figure 5.** Groundwater-level conditions at wells in Prince William County (A), Fairfax County (B), Orange County (C), Buckingham County (D), Montgomery County (E), and York County (F) for October 28 2019.

## Virginia Department of Environmental Quality

**Conditions of Major Drought Indicator Reservoirs, November 1, 2019**

Four large multi-purpose reservoirs are identified as drought indicators in the Virginia Drought Assessment and Response Plan: Smith Mountain Lake, Lake Moomaw, Lake Anna and Kerr Reservoir. Below is a snapshot of reported conditions at these reservoirs on November 1, 2019:

**Smith Mountain Lake** on the Staunton River in the Roanoke drought evaluation region was at an adjusted elevation of 794.71 feet, 0.29 feet below full pool level and 1.71 feet above Watch level. The adjusted elevation is the level the lake would be if the water currently held in the lower Leesville Lake for reuse were pumped back into Smith Mountain Lake. Recent 7-day inflows are in the normal range.

**Lake Moomaw** on the Jackson River in the Upper James drought evaluation region was at 1568.93 feet, which is 13.07 feet below the top of the conservation pool (1582.0 feet MSL) and 3.93 feet above the Drought Watch level. Recent 7-day average inflows to Lake Moomaw are currently in the normal range.

**Lake Anna** on the North Anna River in the Northern Piedmont drought evaluation region was reported at elevation 248.9 feet. The Drought Watch stage for Lake Anna is elevation 248 feet and below. Recent 7-day average inflows to Lake Anna have been in the normal range.

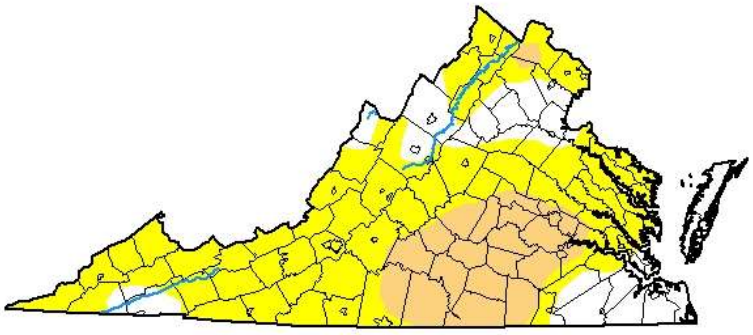
**J. H. Kerr Reservoir** on the Staunton River in the Roanoke drought evaluation region was at 299.11 feet, which is 1.60 feet above the guide curve level for this time period. Recent 7-day average inflows to J. H. Kerr Reservoir are in the normal to above-normal range.

**Table 2: Current water levels at Drought Indicator Reservoirs:**

| Reservoir Name | Date / Time | Reported Elevation (ft msl) | Drought Watch Range (ft msl) | Drought Warning Range (ft msl) | Current Guide Curve Elevation ) ft msl) | Drought Evaluation Region(s) represented |
|---|---|---|---|---|---|---|
| **Smith Mt Lake** | October 18/05:00 | **794.71** | 793 – 791.5 | 791.5 – 790.0 | | Roanoke River |
| **Lake Moomaw** | October 18/9:30 | **1568.93** | 1565 – 1562.5 | 1562.5 – 1560.0 | | Upper & Middle James River |
| **Lake Anna** | October 18 | **248.9** | 248 - 246 | 246 – 244 | | Northern Piedmont |
| **J. H. Kerr Reservoir** | October 18 / 0800 | **299.11** | 3 – 6 ft below guide curve | > 6 ft below guide curve | **297.51** | Roanoke River, Southeast Virginia |

# APPENDIX A

## U.S. Drought Monitor
## Virginia



**October 29, 2019**
*(Released Thursday, Oct. 31, 2019)*
**Valid 8 a.m. EDT**

*Drought Conditions (Percent Area)*

| | None | D0-D4 | D1-D4 | D2-D4 | D3-D4 | D4 |
|---|---|---|---|---|---|---|
| **Current** | 20.21 | 79.79 | 20.54 | 0.00 | 0.00 | 0.00 |
| **Last Week** 10-22-2019 | 13.17 | 86.83 | 53.20 | 1.96 | 0.00 | 0.00 |
| **3 Months Ago** 07-30-2019 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Start of Calendar Year** 01-01-2019 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Start of Water Year** 10-01-2019 | 3.51 | 96.49 | 59.24 | 11.27 | 0.00 | 0.00 |
| **One Year Ago** 10-30-2018 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

*Intensity:*

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

*The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.*

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# APPENDIX B - PRELIMINARY PRECIPITATION SUMMARY: 10/31/19

## Oct 1, 2019 - Oct 31, 2019:

| Drought Region | Observed (in) | Normal (in) | Departure (in) | % of Normal |
|---|---|---|---|---|
| Big Sandy | 4.78 | 2.88 | 1.90 | 166% |
| New River | 5.96 | 3.17 | 2.79 | 188% |
| Roanoke | 6.58 | 3.71 | 2.87 | 177% |
| Upper James | 5.95 | 3.25 | 2.70 | 183% |
| Middle James | 5.16 | 3.84 | 1.32 | 134% |
| Shenandoah | 3.99 | 3.19 | 0.80 | 125% |
| Northern Virginia | 5.13 | 3.48 | 1.65 | 147% |
| Northern Piedmont | 5.52 | 3.99 | 1.53 | 138% |
| Chowan | 5.67 | 3.58 | 2.09 | 158% |
| Northern Coastal Plain | 5.10 | 3.51 | 1.59 | 145% |
| York-James | 5.04 | 3.53 | 1.51 | 143% |
| Southeast Virginia | 4.12 | 3.66 | 0.46 | 113% |
| Eastern Shore | 7.03 | 3.21 | 3.82 | 219% |
| Statewide | 5.40 | 3.50 | 1.90 | 154% |

## Sep 1, 2019 - Oct 31, 2019:

| Drought Region | Observed (in) | Normal (in) | Departure (in) | % of Normal |
|---|---|---|---|---|
| Big Sandy | 5.29 | 6.34 | -1.05 | 83% |
| New River | 6.68 | 6.58 | 0.10 | 102% |
| Roanoke | 7.50 | 7.94 | -0.44 | 94% |
| Upper James | 6.46 | 6.75 | -0.29 | 96% |
| Middle James | 6.03 | 7.97 | -1.94 | 76% |
| Shenandoah | 4.97 | 6.86 | -1.89 | 72% |
| Northern Virginia | 6.04 | 7.55 | -1.51 | 80% |
| Northern Piedmont | 6.68 | 8.27 | -1.59 | 81% |
| Chowan | 7.11 | 8.01 | -0.90 | 89% |
| Northern Coastal Plain | 5.76 | 7.60 | -1.84 | 76% |
| York-James | 7.54 | 8.43 | -0.89 | 89% |
| Southeast Virginia | 7.31 | 8.09 | -0.78 | 90% |
| Eastern Shore | 9.55 | 6.82 | 2.73 | 140% |
| Statewide | 6.41 | 7.50 | -1.09 | 85% |

## Aug 1, 2019 - Oct 31, 2019:

| Drought Region | Observed (in) | Normal (in) | Departure (in) | % of Normal |
|---|---|---|---|---|
| Big Sandy | 8.06 | 10.17 | -2.11 | 79% |
| New River | 9.21 | 9.89 | -0.68 | 93% |
| Roanoke | 10.48 | 11.66 | -1.18 | 90% |
| Upper James | 9.53 | 10.08 | -0.55 | 95% |
| Middle James | 8.92 | 11.79 | -2.87 | 76% |
| Shenandoah | 8.24 | 10.19 | -1.95 | 81% |
| Northern Virginia | 9.54 | 11.40 | -1.86 | 84% |
| Northern Piedmont | 10.09 | 12.09 | -2.00 | 83% |
| Chowan | 11.14 | 12.32 | -1.18 | 90% |
| Northern Coastal Plain | 11.08 | 11.46 | -0.38 | 97% |
| York-James | 14.14 | 13.30 | 0.84 | 106% |
| Southeast Virginia | 14.26 | 13.21 | 1.05 | 108% |
| Eastern Shore | 11.60 | 10.69 | 0.91 | 109% |
| Statewide | 9.87 | 11.33 | -1.46 | 87% |

## Jul 1, 2019 - Oct 31, 2019:

| Drought Region | Observed (in) | Normal (in) | Departure (in) | % of Normal |
|---|---|---|---|---|
| Big Sandy | 13.22 | 14.65 | -1.43 | 90% |
| New River | 13.35 | 13.68 | -0.33 | 98% |
| Roanoke | 14.48 | 16.05 | -1.57 | 90% |
| Upper James | 14.44 | 14.12 | 0.32 | 102% |
| Middle James | 13.44 | 16.20 | -2.76 | 83% |
| Shenandoah | 12.65 | 13.95 | -1.30 | 91% |
| Northern Virginia | 14.99 | 15.17 | -0.18 | 99% |
| Northern Piedmont | 13.83 | 16.49 | -2.66 | 84% |
| Chowan | 16.40 | 16.83 | -0.43 | 97% |
| Northern Coastal Plain | 15.35 | 15.91 | -0.56 | 96% |
| York-James | 19.76 | 18.40 | 1.36 | 107% |
| Southeast Virginia | 19.93 | 18.28 | 1.65 | 109% |
| Eastern Shore | 19.75 | 14.69 | 5.06 | 134% |
| Statewide | 14.53 | 15.67 | -1.14 | 93% |

## Jun 1, 2019 - Oct 31, 2019:

| Drought Region | Observed (in) | Normal (in) | Departure (in) | % of Normal |
|---|---|---|---|---|
| Big Sandy | 19.71 | 18.79 | 0.92 | 105% |
| New River | 19.29 | 17.53 | 1.76 | 110% |
| Roanoke | 21.81 | 19.94 | 1.87 | 109% |
| Upper James | 19.28 | 17.83 | 1.45 | 108% |
| Middle James | 18.97 | 19.71 | -0.74 | 96% |
| Shenandoah | 15.69 | 17.66 | -1.97 | 89% |
| Northern Virginia | 18.84 | 19.03 | -0.19 | 99% |
| Northern Piedmont | 19.83 | 20.50 | -0.67 | 97% |
| Chowan | 25.11 | 20.48 | 4.63 | 123% |
| Northern Coastal Plain | 22.04 | 19.47 | 2.57 | 113% |
| York-James | 27.36 | 21.81 | 5.55 | 125% |
| Southeast Virginia | 25.27 | 21.89 | 3.38 | 115% |
| Eastern Shore | 22.73 | 17.67 | 5.06 | 129% |
| Statewide | 20.50 | 19.46 | 1.04 | 105% |

## May 1, 2019 - Oct 31, 2019:

| Drought Region | Observed (in) | Normal (in) | Departure (in) | % of Normal |
|---|---|---|---|---|
| Big Sandy | 24.63 | 23.61 | 1.02 | 104% |
| New River | 22.59 | 21.74 | 0.85 | 104% |
| Roanoke | 25.03 | 24.27 | 0.76 | 103% |
| Upper James | 22.17 | 22.11 | 0.06 | 100% |
| Middle James | 22.09 | 23.95 | -1.86 | 92% |
| Shenandoah | 19.84 | 21.50 | -1.66 | 92% |
| Northern Virginia | 24.65 | 23.37 | 1.28 | 105% |
| Northern Piedmont | 23.36 | 24.72 | -1.36 | 94% |
| Chowan | 28.57 | 24.57 | 4.00 | 116% |
| Northern Coastal Plain | 25.22 | 23.63 | 1.59 | 107% |
| York-James | 29.46 | 26.08 | 3.38 | 113% |
| Southeast Virginia | 28.24 | 25.75 | 2.49 | 110% |
| Eastern Shore | 25.50 | 21.19 | 4.31 | 120% |
| Statewide | 24.08 | 23.72 | 0.36 | 102% |

## Apr 1, 2019 - Oct 31, 2019:

| Drought Region | Observed (in) | Normal (in) | Departure (in) | % of Normal |
|---|---|---|---|---|
| Big Sandy | 28.65 | 27.37 | 1.28 | 105% |
| New River | 27.67 | 25.29 | 2.38 | 109% |
| Roanoke | 29.13 | 28.07 | 1.06 | 104% |
| Upper James | 27.97 | 25.51 | 2.46 | 110% |
| Middle James | 26.18 | 27.29 | -1.11 | 96% |
| Shenandoah | 24.15 | 24.42 | -0.27 | 99% |
| Northern Virginia | 27.54 | 26.67 | 0.87 | 103% |
| Northern Piedmont | 26.43 | 28.01 | -1.58 | 94% |
| Chowan | 32.82 | 28.00 | 4.82 | 117% |
| Northern Coastal Plain | 28.68 | 26.72 | 1.96 | 107% |
| York-James | 33.29 | 29.38 | 3.91 | 113% |
| Southeast Virginia | 32.57 | 29.00 | 3.57 | 112% |
| Eastern Shore | 29.90 | 24.11 | 5.79 | 124% |
| Statewide | 28.24 | 27.14 | 1.10 | 104% |

## Mar 1, 2019 - Oct 31, 2019:

| Drought Region | Observed (in) | Normal (in) | Departure (in) | % of Normal |
|---|---|---|---|---|
| Big Sandy | 31.85 | 31.62 | 0.23 | 101% |
| New River | 29.80 | 28.96 | 0.84 | 103% |
| Roanoke | 32.10 | 32.34 | -0.24 | 99% |
| Upper James | 31.08 | 29.30 | 1.78 | 106% |
| Middle James | 30.11 | 31.35 | -1.24 | 96% |
| Shenandoah | 27.62 | 27.62 | 0.00 | 100% |
| Northern Virginia | 31.99 | 30.33 | 1.66 | 105% |
| Northern Piedmont | 30.67 | 31.82 | -1.15 | 96% |
| Chowan | 36.74 | 32.37 | 4.37 | 114% |
| Northern Coastal Plain | 31.87 | 31.00 | 0.87 | 103% |
| York-James | 36.94 | 34.07 | 2.87 | 108% |
| Southeast Virginia | 35.33 | 33.20 | 2.13 | 106% |
| Eastern Shore | 33.85 | 28.42 | 5.43 | 119% |
| Statewide | 31.66 | 31.18 | 0.48 | 102% |

## Feb 1, 2019 - Oct 31, 2019:

| Drought Region | Observed (in) | Normal (in) | Departure (in) | % of Normal |
|---|---|---|---|---|
| Big Sandy | 40.96 | 35.20 | 5.76 | 116% |
| New River | 35.15 | 31.89 | 3.26 | 110% |
| Roanoke | 37.42 | 35.65 | 1.77 | 105% |
| Upper James | 36.55 | 32.15 | 4.40 | 114% |
| Middle James | 34.85 | 34.47 | 0.38 | 101% |
| Shenandoah | 30.93 | 30.03 | 0.90 | 103% |
| Northern Virginia | 35.99 | 33.00 | 2.99 | 109% |
| Northern Piedmont | 34.59 | 34.79 | -0.20 | 99% |
| Chowan | 41.53 | 35.54 | 5.99 | 117% |
| Northern Coastal Plain | 36.21 | 34.14 | 2.07 | 106% |
| York-James | 41.45 | 37.60 | 3.85 | 110% |
| Southeast Virginia | 40.29 | 36.70 | 3.59 | 110% |
| Eastern Shore | 37.96 | 31.61 | 6.35 | 120% |
| Statewide | 36.80 | 34.31 | 2.49 | 107% |

## Jan 1, 2019- Oct 31, 2019:

| Drought Region | Observed (in) | Normal (in) | Departure (in) | % of Normal |
|---|---|---|---|---|
| Big Sandy | 45.11 | 38.93 | 6.18 | 116% |
| New River | 37.96 | 35.10 | 2.86 | 108% |
| Roanoke | 41.24 | 39.57 | 1.67 | 104% |
| Upper James | 40.00 | 35.43 | 4.57 | 113% |
| Middle James | 38.09 | 38.13 | -0.04 | 100% |
| Shenandoah | 33.85 | 32.88 | 0.97 | 103% |
| Northern Virginia | 40.02 | 36.28 | 3.74 | 110% |
| Northern Piedmont | 37.72 | 38.31 | -0.59 | 98% |
| Chowan | 45.23 | 39.65 | 5.58 | 114% |
| Northern Coastal Plain | 39.20 | 37.89 | 1.31 | 103% |
| York-James | 45.31 | 41.74 | 3.57 | 109% |
| Southeast Virginia | 44.59 | 40.86 | 3.73 | 109% |
| Eastern Shore | 42.21 | 35.17 | 7.04 | 120% |
| Statewide | 40.29 | 37.95 | 2.34 | 106% |

## Dec 1, 2018 - Oct 31, 2019:

| Drought Region | Observed (in) | Normal (in) | Departure (in) | % of Normal |
|---|---|---|---|---|
| Big Sandy | 50.98 | 42.57 | 8.41 | 120% |
| New River | 43.72 | 37.81 | 5.91 | 116% |
| Roanoke | 47.91 | 42.82 | 5.09 | 112% |
| Upper James | 46.04 | 38.38 | 7.66 | 120% |
| Middle James | 43.57 | 41.30 | 2.27 | 105% |
| Shenandoah | 39.08 | 35.47 | 3.61 | 110% |
| Northern Virginia | 45.58 | 39.38 | 6.20 | 116% |
| Northern Piedmont | 42.91 | 41.59 | 1.32 | 103% |
| Chowan | 49.66 | 42.67 | 6.99 | 116% |
| Northern Coastal Plain | 43.05 | 41.17 | 1.88 | 105% |
| York-James | 49.91 | 45.13 | 4.78 | 111% |
| Southeast Virginia | 49.39 | 44.04 | 5.35 | 112% |
| Eastern Shore | 46.55 | 38.41 | 8.14 | 121% |
| Statewide | 45.74 | 41.07 | 4.67 | 111% |

## Nov 1, 2018 - Oct 31, 2019:

| Drought Region | Observed (in) | Normal (in) | Departure (in) | % of Normal |
|---|---|---|---|---|
| Big Sandy | 56.01 | 45.85 | 10.16 | 122% |
| New River | 47.83 | 40.84 | 6.99 | 117% |
| Roanoke | 54.89 | 46.18 | 8.71 | 119% |
| Upper James | 51.37 | 41.74 | 9.63 | 123% |
| Middle James | 50.56 | 44.81 | 5.75 | 113% |
| Shenandoah | 44.41 | 38.52 | 5.89 | 115% |
| Northern Virginia | 52.62 | 42.79 | 9.83 | 123% |
| Northern Piedmont | 49.76 | 45.39 | 4.37 | 110% |
| Chowan | 56.23 | 45.78 | 10.45 | 123% |
| Northern Coastal Plain | 49.82 | 44.31 | 5.51 | 112% |
| York-James | 55.74 | 48.50 | 7.24 | 115% |
| Southeast Virginia | 53.92 | 47.11 | 6.81 | 114% |
| Eastern Shore | 51.92 | 41.35 | 10.57 | 126% |
| Statewide | 51.82 | 44.30 | 7.52 | 117% |

## Oct 1, 2018 - Oct 31, 2019:

| Drought Region | Observed (in) | Normal (in) | Departure (in) | % of Normal |
|---|---|---|---|---|
| Big Sandy | 59.38 | 48.73 | 10.65 | 122% |
| New River | 53.67 | 44.01 | 9.66 | 122% |
| Roanoke | 61.61 | 49.89 | 11.72 | 123% |
| Upper James | 55.51 | 44.99 | 10.52 | 123% |
| Middle James | 56.57 | 48.65 | 7.92 | 116% |
| Shenandoah | 47.00 | 41.71 | 5.29 | 113% |
| Northern Virginia | 55.35 | 46.27 | 9.08 | 120% |
| Northern Piedmont | 53.92 | 49.38 | 4.54 | 109% |
| Chowan | 61.69 | 49.36 | 12.33 | 125% |
| Northern Coastal Plain | 57.86 | 47.82 | 10.04 | 121% |
| York-James | 60.65 | 52.03 | 8.62 | 117% |
| Southeast Virginia | 57.18 | 50.77 | 6.41 | 113% |
| Eastern Shore | 55.55 | 44.56 | 10.99 | 125% |
| Statewide | 56.84 | 47.80 | 9.04 | 119% |

## Sep 1, 2018 - Oct 31, 2019:

| Drought Region | Observed (in) | Normal (in) | Departure (in) | % of Normal |
|---|---|---|---|---|
| Big Sandy | 66.15 | 52.19 | 13.96 | 127% |
| New River | 63.42 | 47.42 | 16.00 | 134% |
| Roanoke | 72.46 | 54.12 | 18.34 | 134% |
| Upper James | 64.93 | 48.49 | 16.44 | 134% |
| Middle James | 64.15 | 52.78 | 11.37 | 122% |
| Shenandoah | 56.54 | 45.38 | 11.16 | 125% |
| Northern Virginia | 63.72 | 50.34 | 13.38 | 127% |
| Northern Piedmont | 63.08 | 53.66 | 9.42 | 118% |
| Chowan | 66.47 | 53.79 | 12.68 | 124% |
| Northern Coastal Plain | 63.93 | 51.91 | 12.02 | 123% |
| York-James | 66.88 | 56.93 | 9.95 | 117% |
| Southeast Virginia | 61.46 | 55.20 | 6.26 | 111% |
| Eastern Shore | 62.31 | 48.17 | 14.14 | 129% |
| Statewide | 64.91 | 51.80 | 13.11 | 125% |

## Aug 1, 2018 - Oct 31, 2019:

| Drought Region | Observed (in) | Normal (in) | Departure (in) | % of Normal |
|---|---|---|---|---|
| Big Sandy | 71.91 | 56.02 | 15.89 | 128% |
| New River | 69.53 | 50.73 | 18.80 | 137% |
| Roanoke | 78.38 | 57.84 | 20.54 | 136% |
| Upper James | 71.39 | 51.82 | 19.57 | 138% |
| Middle James | 69.61 | 56.60 | 13.01 | 123% |
| Shenandoah | 63.82 | 48.71 | 15.11 | 131% |
| Northern Virginia | 68.92 | 54.19 | 14.73 | 127% |
| Northern Piedmont | 71.25 | 57.48 | 13.77 | 124% |
| Chowan | 71.67 | 58.10 | 13.57 | 123% |
| Northern Coastal Plain | 69.02 | 55.77 | 13.25 | 124% |
| York-James | 70.88 | 61.80 | 9.08 | 115% |
| Southeast Virginia | 67.05 | 60.32 | 6.73 | 111% |
| Eastern Shore | 64.85 | 52.04 | 12.81 | 125% |
| Statewide | 70.81 | 55.63 | 15.18 | 127% |